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ABSTRACT

This paper explores the results of an experimental program at Tufts University designed to affect medical students' career choices. Students were located in a rural hospital for the entire third year of their medical training. It was hypothesized that the program would result in more positive orientations toward practice in rural settings and toward primary care. Longitudinal survey data on students exposed to alternative training settings and those remaining in the university were analyzed using a multivariate test of significance. The results indicate no treatment effects. Some of the possible reasons for the negative results, and the policy implications of those results, are discussed. (Author)

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Alternative Education Settings and Career Preferences Among Medical Students

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ABSTRACT

This paper explores the results of an experimental program designed to affect medical students' career choices. Students were located in a rural hospital for the entire third year of their medical training. It was hypothesized that the program would result in more positive orientations toward practice in rural settings and toward primary care. Longitudinal survey data on students exposed to alternative training settings and those remaining in the university were analyzed using a multivariate test of significance. The results indicate no treatment effects. Some of the possible reasons for the negative results, and the policy implications of those results, are discussed.

Introduction

Since World War II, medicine, like other scientific disciplines, has been characterized by an enormous growth in the knowledge base. Concomitant with this development has been the increasing concentration and centralization of physicians in non-primary care specialities and in urban centers. Although these two trends have improved the quality and sophistication of care offered to the critically ill in major medical centers, it has also resulted in a geographic and specialty maldistribution of physicians leaving a large proportion of all citizens and especially rural residents without adequate health care.

During the 1960's, however, critics from outside and within the profession began to challenge the utility of the dominant urban/specialist model of health care delivery. Community groups and federal legislators have pressed for modifications in the delivery system with the explicit goal of decentralizing the present structure. This has resulted in the development of neighborhood health centers, community mental health clinics, a national health service corps to provide care for residents in critically under-served areas, and decentralized regional manpower programs. Within the medical profession educators have proposed and in some cases implemented programs designed to alter the types of physicians trained in the university system. These changes include the development of family practice residencies and clinical rotations and the re-emphasis in the training process on primary care medicine, the treatment of common illnesses, and families.

Two approaches which might reverse this trend within medical education have been advocated. The first suggests recruiting students from rural areas while the second proposes remote site training in areas of greatest need for

undergraduate medical students. The goal of both of these approaches is that students will remain in or return to such areas upon completion of their training. The objective of this paper will be to examine the effectiveness of the second approach; to determine whether intervention in the clinical training experiences during medical school can alter career preferences.

Related Literature

The process of professional education and career choice is directly addressed by the social science literature on role theory and adult socialization. Since the fundamental premise underlying alternative educational experiences (e.g., preceptorship programs) is that it is possible to alter career preferences through minimal contact with non-university based role models, it seems appropriate to review briefly some of the theoretical concepts developed in this area of research.

The traditional or structural approach in role theory has been dominated by the basic assumption that role acquisition is a one-step event whereby individuals learn new social positions through observing and internalizing "visible" social expectations and immediately conform to the expectations directed at them (Nadel 1957; Parsons 1951). Professional role learning is envisioned primarily as a process of imitation and internalization during which individuals learn a complex set of rules pertaining to a specific position. This process is not characterized by flexibility and thus discourages the contribution of individual creativity.

From this perspective, traditional medical education would be characterized as a form of adult role learning whereby novices enter a formal organizational setting, and are given a fairly intensive and inflexible program to follow, with an accompanying set of roles. The roles and role models which

they are likely to imitate have been summarized as follows: 1) to become a specialist; 2) to treat a middle income population; 3) to function in an urban office or hospital practice with a high rate of interaction with other physicians. The introduction of alternative role models (e.g., via preceptorship or other alternative educational experience) could therefore be expected to produce different physician types determined by the models presented (e.g., primary care physicians, rural practitioners).

The Area Health Education Centers Program (AHEC) which was designed and implemented as part of an effort to remedy the specialty and geographic maldistribution of medical manpower is based on this general assumption. The 1970 Carnegie Commission on Higher Education recommended the establishment of AHECs in various parts of the country. These AHECs, following the Commission's recommendations, were to be sponsored by existing centers in under-served areas which lacked a medical school or other significant medical facility. The clear goal of this approach, which will be examined in this paper, was to train students in settings located in areas of greatest needs and hopefully to encourage them to remain in such areas upon completion of their medical training. Implicit in the design of the program is the belief that the presentation of alternative role models will result in similar roles as a work/career preference.

Alternative conceptions of adult socialization have viewed role acquisition as an interactive and interpretive process (Becker 1961,1964; Goffman 1959; Olesen and Whittaker 1970; Turner 1962). These works give far greater importance to the individual and social-psychological aspects involved in the process and tend to stress the importance of role acquisition as the interaction between individual desires or initiatives and given roles or sets of expectations. Olesen and Whittaker, for example, argue that the broader

concept of acculturation better explains the mechanisms by which both child and adult acquire norms, values, and roles within their culture (1970). Furthermore, greater attention is given by theorists in this tradition to the problematic features inherent in adult socialization. One of the basic tenets of the interpretive position is that socialization is a creative process in which the actor and significant others interact and from that interaction a "reality" is constructed which is traditionally thought of as a role. The existence of a culture with values and norms is not denied, but the emphasis is placed on the interpretation of these norms rather than the simple acceptance of them (Clausen 1968; Brim and Wheeler 1966).

The process of professional socialization from this perspective becomes one of reciprocity and negotiation rather than simple imitation. The introduction of students to non-traditional professional role models might still be expected to alter their career preferences, but not to the extent and the manner predicted by the structuralist. Furthermore, the final outcome of the career decision-making process would be influenced as strongly by the students' previous experiences, both educational and non-educational, as by situations encountered while in medical school.

A considerable literature directly relating to the training of medical students has emphasized the importance of the clinical years in formulating career preferences (Merton 1957). Prior to the third year of training, the amount of contact students have with clinical physicians is fairly limited. The majority of their contact with the profession is through academic physicians and scientists working in medical schools. This, it is argued, is the reason why there is a clear shift in students' preferences from generalist to specialty areas after their initial contact with clinical medicine (Oates and

Feldman 1974). Simultaneously, studies report, there is also a movement away from preferences for small town or rural practices to more urban areas. This is especially true of students training in large urban centers (Briesch 1970; Shroeder and Schliftman 1973).

In an effort to reverse these two trends, many medical schools have begun developing training programs which expose students during their clinical years to primary care experiences in geographically under-served areas. For the most part, these programs have taken the form of preceptorship training made possible to a large extent by training grants from the Bureau of Health Manpower. The general purpose of these programs is to provide first-hand experience for approximately four to six weeks in shortage areas as a means of encouraging students eventually to select these areas to practice.

A variety of results, however, have been reported (Estes 1973, Quenk 1976; Foglesong and Born 1974; McMillian and Foglesong 1975; Andreopoulos 1975).* Given the two theoretical perspectives discussed above, this is not a surprising finding. According to both the structural and interpretive literatures on adult socialization, the predicted changes in student career preferences could not be expected to occur in the direction or magnitude desired given the brevity of encounters and the amount of time it takes to learn new roles and/or negotiate new realities. These conflicting findings do not negate the possibility that students preferences can be altered. They suggest, however, that the length of the exposure may be a crucial determinant in the change process.

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* These discrepancies are a result of the use of inconsistent and improper evaluation methodologies as well as differences in the experimental settings.

Keeping in mind both perspectives and their accompanying assumptions, the next step is to examine the following hypothesis: Does the prolonged exposure of medical students to alternative non-university-based community hospitals increase or support their preference to pursue careers in primary care medicine and or locate in non-urban areas?

The Program

One of the major medical centers selected to participate in the AHEC program was Tufts University, and the underserved area to which the program is linked is the state of Maine. One of the components of the Tufts/Maine AHEC is a remote site clinical undergraduate training program. Located in a community hospital over 100 miles from the city of Boston, the program is designed to train sixteen third year medical students. Unlike preceptorship programs, however, the students remain in the community hospital for their entire first year of clinical training. Although the hospital is fairly large, 550 beds, and provides some tertiary care, the community which it predominantly serves is located near or proximate to the hospital and maintains a full time and attending staff with far fewer specialists and sub-specialists than in major urban centers.

Method

Sample

In the spring of 1974 and 1975, all students enrolled at Tufts University School of Medicine were mailed a questionnaire which was designed to determine their career preferences. From the total medical school population, the responses of students in their third year in 1974 were selected and divided into two groups: those remaining in Boston during their third year for

clerkships and those training in Maine. The total class size for that year was 150, of which 16 went to Maine. Since the response rates were less than 100% and some of the questions were improperly answered, the total usable respondents were reduced to 50% of the class.

Instrumentation

The students were asked in 1974, and in a more detailed manner in 1975, to provide responses to questions concerning their general background, decision to study medicine, preferences concerning fields of specialization, type of community in which they wished to practice, method by which they chose to be paid, and assorted questions relating to general attitudes toward medicine and different types of doctors. For the purposes of this analysis, only nine variables will be examined. Four of the variables relate to issues surrounding the practice preference decision directly and five concern general life satisfaction. The variables were constructed in the following manner:

Group I Practice Preferences

1) Organizational Setting - five point scale of traditional to innovative practice settings, where traditional is defined as private solo practice and innovative as publically supported clinical settings.

2) Primary Care - three point scale indicating high to low commitment to primary care specialties (primary care specialties include: family practice, internal medicine, and pediatrics).

3) Geographic Preference - four point scale ranging from inner city urban to small town or rural settings.

4) Payment Scheme - three point scale: response set included fee for service, salary, hospital payroll.

Group II Life Satisfaction Attitudes

1-4) Religion, Family, Career, Leisure - five point Likert type scale indicating importance of these factors on overall life satisfaction (1 high importance, 5 low importance).

5) Success - four point scale indicating desire for professional recognition: response set included national, state, local levels, and not thinking in those terms.

Procedure

To evaluate the AHEC experience is a difficult task. Clearly, before AHEC can be evaluated conclusively, it will be necessary to track the students for a specified period of time to determine how many actually establish rural or primary care practices. Since such an assessment is not practical or possible under the time constraints of the programs, the alternative is to measure the intentions and attitudes of the students to see if they have been affected by the year in a remote setting.

Thus the variables identified above were selected as indicators of the students' attitudes and preferences, and grouped into the two broad categories of practice preferences and life satisfaction concerns. Aggregated in this manner, responses of students who remained in Boston to train and those who took part in the remote-site training were twice contrasted by means of a multivariate Hotelling's T^2 to determine if, when taken simultaneously, the vector of means of the variables associated with the broader category differed significantly. Additionally, univariate unpaired t-tests were performed on each of the nine variables.

The evaluative strategy is graphically presented in Figure 1. For each of the five contrasts, A-E, two multivariate and nine univariate tests of significance were performed. Figure 1 also facilitates the establishment of a priori evaluative decision rules regarding the success of the program. For example, a significant finding on contrast A would suggest that the self-selection process has isolated groups having important differences before training. B and C are within group comparisons; patterns of significance on these statistical tests could illustrate three potential outcomes: 1) changes in scores from pre to post testing would indicate normal maturation independent of where the students were trained if B and C evidenced similar changes or

2) could indicate that spending a year in a rural setting either insulate AHEC students from developmental processes occuring in the medical school (C change, B constant) or 3) that the program may have had an impact on career goals (C constant, B change). D is a simple posttest comparison that provides some, but not conclusive, evidence as to the effect of the program. The salient contrast is E which assesses the posttest score adjusted for pretest responses. A significant difference on E would indicate that the program had an impact that could not be explained by the self-selection bias.

Results

Descriptive statistics, means and standards deviations, and sample size used in the evaluation of the remote-site training are presented in Table 1. Table 2, in turn, presents the results of the multivariate and univariate tests of significance. The comparison most germane to an evaluation of the impact of the decentralized experience, E, is uniformly nonsignificant on both a multivariate and univariate level. From this it can be concluded that the AHEC experience had little impact on student responses when adjusted for pre-clinical career preferences.

No comparisons on the attitudinal variables were significant in the multivariate analysis and the single significant univariate value is undoubtedly a chance occurence. By contrast, two multivariate comparisons on the practice preference category were significant. These contrasts, A and D, represent between group differences on the pre and posttests. Inspection of the unpaired univariate t-test reveals that the cause of the discrepancy is group differences on the geographic preference variable. Group means, Table 1, not surprisingly, demonstrate that the students training in Maine

were moe apt to state that they preferred rural living. Their predilection for decentralized settings, while down slightly from pretest levels, remained significantly higher than that of their urban trained counterparts.

It would appear that differences on the posttest reflect pretest responses and that the Maine grcup was self-selected on the basis of their preference for rural living. Little change in this geographic leaning occurred in either group as confirmed by the nonsignificant findings on B and C. Notice that specious conclusions may have been formulated had only comparison D been available. However, when the full information contained in the pre and post-tests was utilized in contrast E, the negligible effect of the program is apparent.

Discussion and Conclusions

The findings above can be interpreted differently based on the two theoretical paradigms offered earlier. From the interpretive theory of role acquisition perspective, the findings are not surprising given the interactive manner in which role acquisition is viewed by its proponents. Simply treating professional socialization as synonymous with the process of assimilation, they argue, underestimates the true contribution students make to the overall process. While the repertoire of norms and values, role behaviors, and moral imperatives attributed the profession do, in fact, impact on the development of the student professional, equal value must also be assigned to the students' own attitudes, values, and range of experiences (Schutz' "stock of knowledge") in determining the final career or role selection (Schutz 1970; Olesen and Wittaker 1970). Clearly, previously held attitudes and experiences were stronger determinants of career preferences and current life style concerns than exposure to a non-traditional educational experience. Even prolonged

contact with non-university-based practitioners seems to have had no impact on career preferences. At most what could be argued is that experience served to support a preclinical career preference and thus prevented the predicted shift away from primary care and rural practices. This shift, however, was not in evidence among the students included in this study.

The structuralist explanation of role acquisition seems little supported by the data. The introduction of students to alternative role models and non-urban style practice had no impact on career preferences. On the other hand, it could be argued that by the time the students reach their third year they have become so assimilated into an urban life style and reliance on urban facilities that even a positive encounter with a more rural health setting does not override their insecurities concerning the viability of practicing at a distance from major medical centers. Furthermore, while this remote site offered an alternative organizational and professional environment, it could not, given academic requirements for a full year, differ to the extent which might be necessary to impact upon and alter student preferences. In other words, the "visible" role models at this university-affiliated community hospital may not have been as different as one might have hoped.

From this preliminary analysis of the impact of remote education on career preference, several tentative conclusions can be drawn, but may need to be revised in light of actual behavioral outcomes. The decentralization of medical education alone will not provide the non-urban physicians needed. Furthermore, our data and other studies on alternative educational training programs lead us to question whether it is even feasible to provide medical students with realistic alternative models within the present structure of

medical education. The need to provide third year students with training comparable in content to that received in the university hospitals seriously limits the degree to which exposure to alternatives is significantly different.

Perhaps more important, this study directs our attention to the question of whether it is appropriate to expect modifications within the educational system to alter students' career preferences while the structure of medicine and health care delivery remains essentially unchanged. As the structuralist role theory posits, novices learn the rules of the game and reckon with them based upon the given realities. Medical students are aware of the factors prohibiting or intervening in the practice of quality medicine and, given the existing structure of medicine, reasonably resist choosing practice modes which would be conflicting.

Given our earlier findings and the conditions surrounding the delivery of health care in the United States today, several policy alternatives might be considered if the broad social goal of redistributing health manpower is accepted as legitimate and acted upon accordingly. First, since remote site education seems to have minimal or no impact on career preference, it would seem reasonable to suggest that medical schools should seek out applicants during the admissions process who either come from rural reas or have a demonstrated predilection for rural and primary care medicine. Second, stronger professional and economic incentives should be offered to physicians willing to locace in underserved areas or who choose primary care medicine. Although the health service corps is an initial step in this direction, it does not provide the continuity of care critical to preventive and family medicine. Last, and perhaps most important, changes within the basic structure of health care delivery must occur in order to improve the viability of practicing quality non-urban medicine and, in turn, to improve the access of present nonrecipients to health care services.

Figure 1: SCHEMATIC REPRESENTATION OF A PRIORI COMPARISONS

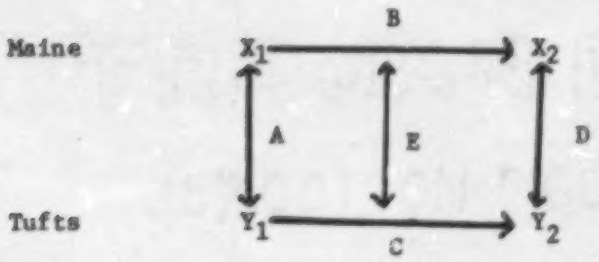

Table 1: MEANS AND STANDARD DEVIATIONS FOR AHEC EVALUATION

CATEGORY AND VARIABLE	MAINE PRE $\bar{X}$	MAINE PRE SD	MAINE POST $\bar{X}$	MAINE POST SD	TUFTS PRE $\bar{X}$	TUFTS PRE SD	TUFTS POST $\underline{X}$	TUFTS POST SD
A) Group I Practice Preference								
1. Organizational Setting	2.857	1.069	2.714	1.380	3.150	1.122	3.223	1.209
2. Primary Care	1.714	.488	2.000	.816	1.650	.662	1.775	.660
3. Geographic Preference	4.000	.577	3.714	.488	2.325	1.071	2.225	1.097
4. Payment Scheme	1.286	.488	1.571	.787	1.475	.554	1.500	.506
Sample Size			7				40	
B) Group II Life Satisfaction Attitudes								
1. Religion	3.818	1.250	3.818	1.401	3.833	1.404	4.017	1.255
2. Family	1.182	.405	1.000	.000	1.217	.640	1.233	.500
3. Career	1.727	1.009	1.455	.522	1.400	.588	1.450	.565
4. Leisure	1.723	.786	1.723	.647	1.883	.904	1.900	.951
5. Success	3.455	.522	3.273	.647	3.367	.780	3.017	.725
Sample Size			11				60	

Table 2: SUMMARY OF UNIVARIATE AND MULTIVARIATE COMPARISONS

CATEGORY AND VARIABLE	A	B	C	D	E
A) Group I Practice Preference					
1. Organizational Setting	.04	.35	-.40	1.24	-.58
2. Primary Care	.23	-1.00	-1.15	-.86	.65
3. Geographical Preference	-4.06**	-.79	-.37	-3.50**	.68
4. Payment Scheme	-.37	1.55	.73	-.18	.44
Multivariate T^2	5.292**	.556	.178	3.673**	.542
B) Group II Life Satisfaction Attitudes	A	B	C	D	E
1. Religion	-.49	.00	2.90**	-1.02	-.91
2. Family	-.03	.00	-1.90	.39	-1.20
3. Career	-1.54	1.15	-.69	-.07	-1.30
4. Leisure	.55	.00	-.15	.59	-.15
5. Success	.16	.80	-.28	1.52	.70
Multivariate T^2	.769	.562	1.585	.978	.904

** = significance .01 level

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